

Patent claims

1. An isolated regulatory CD4⁺CD25⁺ T cell which contains at least one galectin.
- 5 2. An isolated T-regulatory cell as claimed in claim 1 which consists of the CD4⁺CD25⁺β7⁺ subpopulation.
- 10 3. An isolated T-regulatory cell as claimed in claim 1 or 2 which contains at least one galectin selected from the group galectins 1-14.
- 15 4. An isolated T-regulatory cell as claimed in one of claims 1 to 3 which contains a human galectin or a homologous protein.
- 20 5. An isolated T-regulatory cell as claimed in one of claims 1 to 4 which contains at least one galectin selected from the group SEQ ID No. 1 to SEQ ID No. 5.
- 25 6. An isolated T-regulatory cell as claimed in one of claims 1 to 5 which contains at least one galectin selected from the group SEQ ID No. 1 or SEQ ID No. 2 having the isoforms: a.) apparent molecular weight of 14 kDa and a pI of 6.7, b.) apparent molecular weight of 13.5 kDa and a pI of 5.9, c.) apparent molecular weight of 13 kDa and a pI of 30 5.9.
- 35 7. An isolated T-regulatory cell as claimed in claim 6, wherein the isoforms are selected from the group SEQ ID No. 8 to SEQ ID No. 64.
8. An isolated regulatory T cell as claimed in one of claims 1 to 7, characterized in that at least one galectin is secreted, is located in the membrane or is presented on the surface of the T-regulatory

cell or in the cytosol.

5 9. An isolated regulatory T cell as claimed in one of claims 1 to 8, characterized in that at least one galectin is concentrated in the regulatory T cell or on the surface of the regulatory T cell.

10 10. An isolated regulatory T cell as claimed in one of claims 1 to 9, characterized in that at least one nucleic acid encoding at least one galectin is present and, where appropriate, comprises one or more noncoding sequences and/or a poly(A) sequence and/or recognition sequences and/or regulatory sequences such as promoter or enhancer sequences.

15 11. An isolated T-regulatory cell as claimed in one of claims 1 to 9, characterized in that the nucleic acid sequence is selected from SEQ ID No. 6 or SEQ ID No. 7.

20 12. An isolated or native regulatory CD4⁺CD25⁺ T cell which contains at least one galectin as target or marker.

25 13. An agent which binds at least one isolated regulatory T cell as claimed in one of claims 1-11 or native regulatory T cell as claimed in claim 12.

30 14. A binding agent as claimed in claim 13, which is selected from the group inhibitor, agonist, antagonist, probe, antibody or immunomodulator.

35 15. A binding agent as claimed in claim 13 or 14, wherein the binding agent exhibits one or more epitopes directed against galectin.

16. A binding agent as claimed in claim 15, wherein the binding agent additionally exhibits one or

more epitopes directed against a surface protein.

17. A binding agent as claimed in claim 16, wherein
the surface protein is selected from the group
CD25, CD44, CD45, GITR, CTLA-4 and Fox P3.
18. A binding agent as claimed in one of claims 13 to
17, wherein the isolated regulatory T cell or
native regulatory T cell containing at least one
galectin is activated or inactivated.
19. A pharmaceutical which comprises at least one
binding agent as claimed in one of claims 13 to 18
or isolated T-regulatory cells as claimed in one
of claims 1 to 11.
20. A pharmaceutical as claimed in claim 19 for the
treatment and therapy of diseases, specifically
allergies, autoimmune diseases, in particular
rheumatoid arthritis, multiple sclerosis or
Crohn's disease, chronic inflammation, asthma,
immunodeficiency diseases, AIDS, transplant
rejection and cancer diseases as well as diabetes.
21. A pharmaceutical as claimed in claim 20, wherein
the autoimmune diseases are selected from the
group: alopecia areata, Bechterew's disease,
antiphospholipid syndrome, Addison's disease,
Behcet's disease, sprue celiac disease, chronic
fatigue immune dysfunction syndrome (CFIDS),
polyneuropathy, Churg-Strauss syndrome
(granulomatosis), CREST syndrome (Raynaud's
syndrome), cold agglutinin disease,
cryoglobulinemia, fibromyalgia, fibromyositis,
Basedow's disease, Guillain-Barré syndrome,
idiopathic pulmonary fibrosis, idiopathic
thrombocytopenia, IgA nephropathy, lichen planus,
Ménière's disease, polyarteritis nodosa,
polychondritis, polyglandular syndrome,

polymyalgia rheumatica, primary
agammaglobulinemia, biliary cirrhosis, psoriasis,
Reiter's disease, sarcoidosis, Sjögren's disease,
Takayasu arteritis, vasculitis, vitiligo and
5 Wegener's granulomatosis.

22. A test system which comprises at least one binding
agent and at least one regulatory T cell
containing galectins for identifying suitable
10 binding agents or regulatory T cells, preferably
those possessing elevated suppressive properties.

23. A test system which comprises at least one
regulatory T cell containing galectins and at
15 least one target cell, in particular T cell, B
cell, macrophage, predendritic cell, dendritic
cell, embryonic cell and/or fibroblast which
is/are incubated with at least one regulatory T
cell for the in-vitro detection of suppressive
20 properties, in particular suppression of the
cellular immune response of effector cells of the
immune system, in particular B cells, NK cells,
preferably T cells and T helper cells.

24. The test system as claimed in claim 23, wherein
the effector cells are mammalian cells, in
particular human or murine cells or an immune cell
line and/or a cultured primary immune cell.

25. The test system as claimed in claim 23 or 24,
wherein at least one further substance which can
elicit an immune response, such as proteins,
epitopes, protein fragments, antigens or binding
agents, is/are incubated.

26. A diagnostic agent which comprises a test system
as claimed in one of claims 22 to 25 and, where
appropriate, a pharmaceutically acceptable
support.

27. A diagnostic agent as claimed in claim 26 for
diagnosing diseases, specifically allergies,
autoimmune diseases, in particular rheumatoid
arthritis, multiple sclerosis or Crohn's disease,
chronic inflammation, asthma, immunodeficiency
diseases, AIDS, transplant rejection and cancer
diseases as well as diabetes.
28. A diagnostic agent as claimed in claim 27 for
diagnosing diseases, specifically autoimmune
diseases selected from the group: alopecia areata,
Bechterew's disease, antiphospholipid syndrome,
Addison's disease, Behcet's disease, sprue celiac
disease, chronic fatigue immune dysfunction
syndrome (CFIDS), polyneuropathy, Churg-Strauss
syndrome (granulomatosis), CREST syndrome
(Raynaud's syndrome), cold agglutinin disease,
cryoglobulinemia, fibromyalgia, fibromyositis,
Basedow's disease, Guillain-Barré syndrome,
idiopathic pulmonary fibrosis, idiopathic
thrombocytopenia, IgA nephropathy, lichen planus,
Ménière's disease, polyarteritis nodosa, poly-
chondritis, polyglandular syndrome, polymyalgia
rheumatica, primary agammaglobulinemia, biliary
cirrhosis, psoriasis, Reiter's disease,
sarcoidosis, Sjögren's disease, Takayasu
arteritis, vasculitis, vitiligo and Wegener's
granulomatosis.